

Little had been added to our knowledge of this curious form since the publication of the notice of it in Dresser's 'Birds of Europe' (iv. p. 383, pl. 242).

The specimens in the Society's collection had been purchased from M. Augéard, Préparateur Naturaliste, 22, Rue des Casernes, Oran, and were believed to have been captured in the south of the Province of Oran.

In a recently published number of the 'Journal für Ornithologie' (1888, p. 225) would also be found a notice of specimens of this Lark having been obtained by Dr. A. Koenig in the Tunisian Sahara in May 1887.

Dr. Günther, F.R.S., exhibited and made remarks on some fishes which had been dredged up by Mr. John Murray off the west coast of Scotland, and were not previously known to occur in British waters, viz., *Cottus lilljeborgii* (Collett), *Triglops murrayi*, sp. n., *Gadus esmarkii* (Nilss.), *Onus reinhardti* (Collett), *Pieraster acus* (Brünn.), *Scopelus scoticus*, sp. n., and *Stomias ferox* (Ruhrdt.).

The following communications were read:—

1. On the Species of *Rhacophorus* confounded under the name of *R. maculatus*. By G. A. BOULENGER.

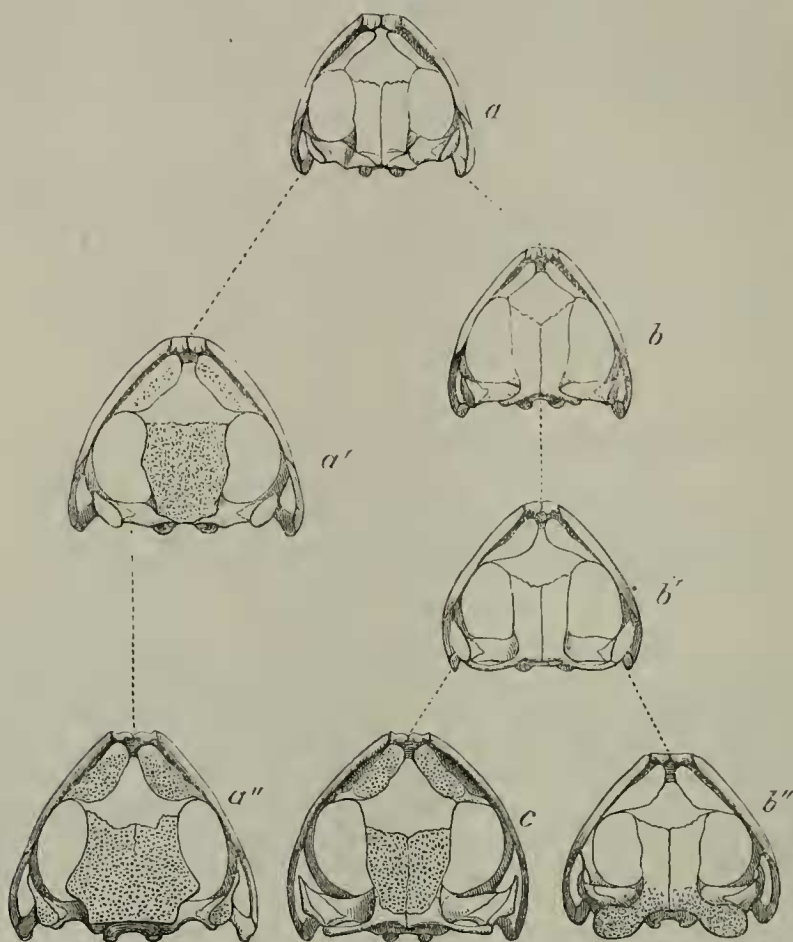
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A recent reinvestigation of the material in the British Museum has convinced me that several species have been confounded by me, as well as most of my predecessors in Indian herpetology, under the name of *Rhacophorus* (or *Polypedates*) *maculatus*. Apart from *R. seavirgatus*, Gravh.¹ (*quadri-lineatus*, Wgm.), which is nothing but a colour-variety of the eastern form, *R. leucomystax*, Gravh. (*rugosus*, D. & B.), two species have been described, upon the value of which herpetologists have been in doubts, viz. *Polyp. cruciger*, Blyth, and *P. scutiger*, Ptrs., both from Ceylon. The former was separated on account of its larger size and coloration. Nevill, who has recently taken up the matter again, distinguishes it from *R. maculatus* by its much larger size, stouter feet, and the uniform colouring of the hinder part of thighs, which never present any approach to the white or yellow spotting and marbling observable in *R. maculatus*. Neither the characters pointed out by Blyth nor those given by Nevill can serve to distinguish *R. cruciger* from the continental *R. maculatus*, if the latter be taken in the customary comprehensive sense; and the total absence of white spotting on the thigh is so far from being constant that one of the specimens in the British Museum,

¹ *Hylorana longipes*, Fischer, of which the type specimen is now in the Museum, is another synonym of this variety.

an otherwise typical *R. cruciger*, 34 millim. long from snout to vent, from Dr. Kelaart's collection, has the flanks and the sides of the thighs spotted with white on a brown ground.

Polypedates biscutiger was established by Peters for specimens from Rambodde, Ceylon, "agreeing with *P. maculatus* in size and appearance, but easily distinguished by bony nuchal prominences, which are especially distinct in the adult, the smaller tympanum,



Upper surface of skulls of *Rhacophorus*.

a. R. leucomystax, Darjeeling; *a'*. Ditto, China; *a''*. Ditto, Celebes. *b. R. maculatus*, Nilgherries; *b'*. Ditto, Bombay; *b''*. Ditto, Ceylon. *c. R. cruciger*, Ceylon.

All the figures are taken from adult females.

and the colour of the thighs, the hinder side of which bears large yellow spots on black-marbled ground." But these being precisely the characters of the true *R. maculatus* from India and Ceylon, it is clear that Peters based his comparison on the other Ceylonese form, *R. cruciger*, which he probably regarded as the typical *R. maculatus*. *P. biscutiger*, Ptrs., is therefore a synonym of *R. maculatus*, Gray.

I am nevertheless satisfied that both Blyth and Peters were correct in distinguishing two species in Ceylon, as were likewise the authors of the 'Erpétologie générale' in distinguishing the Indian (Bengal, Pondichery, Malabar) from the Malayan (Java, Philippines) form, although they made the mistake of applying to the former the name *leucomystax*, which belongs to the latter, their *P. rugosus*.

The comparison of fully adult skulls shows very great differences between the extreme types; and these differences corresponding with certain external characters, though of a very trivial nature, and with the habitats, it is difficult not to admit that they deserve recognition in the system. But if a large series of examples be examined, the gaps between the various forms are nearly completely bridged over, as may be seen from the figures (p. 28), which at the same time afford an excellent example of derivation of characters and speak clearly against the systematic value of certain cranial structures to which Cope still attaches undue importance¹.

However, I think it best to distinguish as species the three following forms, and I will proceed to give their characters, synonymy, and distribution.

RHACOPHORUS LEUCOMYSTAX.

Hyla leucomystax, Gravenh. Delic. Mus. Vratisl. p. 26 (1829).

Hyla sexvirgata, Gravenh. l. c. p. 28.

Hyla quadrilineata, Wieg. N. Acta Ac. Leop.-Carol. xvii. i. p. 260, pl. xxii. fig. 1 (1835).

Polypedates leucomystax, Tschudi, Class. Batr. p. 75 (1838); Cantor, Cat. Mal. Rept. p. 142 (1847).

Polypedates rugosus, Dum. & Bibr. viii. p. 520 (1841).

Polypedates maculatus, part., Günth. Cat. Batr. p. 78 (1858), and Rept. Brit. Ind. p. 428 (1864); Stoliczka, Proc. As. Soc. Beng. 1872, p. 106.

Polypedates quadrilineatus, Günth. ll. cc. pp. 79 & 429; Anders. Proc. Zool. Soc. 1871, p. 207.

Polypedates maculatus, Anders. l. c.

Polypedates megacephalus, Hallow. Proc. Ac. Philad. 1860, p. 507.

Rhacophorus maculatus, part., Bouleng. Cat. Batr. p. 83 (1882).

Hylorana longipes, Fischer, Arch. f. Nat. li. p. 47 (1885).

The largest specimen (from Siam) in the Collection measures 81 millim. from snout to vent.

No connection between the fronto-parietals and the squamosals. In the Himalayan specimens examined (six from Darjeeling and one

¹ Prof. Cope, in a notice of the British Museum Catalogue of Batrachians (cf. Am. Nat. 1883, p. 181), expresses the hope that, if another edition of the work is called for, the author will modify it by the adoption of the genera characterized by the degree of ossification of the cranial bones, which would divide *Hyla* into four genera, viz. *Hyla*, *Scytotis*, *Osteocephalus*, and *Trachycephalus*. If these principles were applied to the *Rhacophori*, we should have at least three genera in the *maculatus*-group; just as, on account of the presence of a fronto-parietal fontanelle, *Bufo calamita* is placed by Cope in a distinct genus away from *B. viridis*. In fact, he has recently ('Origin of the Fittest,' p. 82) proposed to restrict the genus *Polypedates* to the species with rugose skull.

from Sikkim), measuring up to 68 millim. from snout to vent, and in a single Formosan, 60 millim. long, the skin is perfectly free from the skull, which shows no trace of rugosities, and the width of the interorbital space equals or a little exceeds the width of the upper eyelid. The skull of Chinese specimens, up to 48 millim., resembles that of the Himalayan, whilst larger specimens, up to 70 millim., are intermediate between the latter and the Burmese-Malayan, both as regards the width of the interorbital space and the rugosities, the skin adhering to the fronto-parietals, but not to the nasals. In all the other specimens (Rangoon, Tenasserim, Siam, Camboja, Cochinchina, Singapore, Sumatra, Nias, Borneo, Java, Philippines, Celebes) the skin adheres to the fronto-parietals in individuals only 40 millim. long; and in the adult the interorbital space becomes very broad and concave, once and a half to twice the width of the upper eyelid, strong angular postorbital processes are developed, and the skin adheres not only to the fronto-parietals but also to the nasals and squamosals, as may be seen at *a''* in the figure (p. 28). Here follow some measurements, in millimetres, of the skulls of specimens from various localities:—

	♀. Darjeeling.	♀. S. China.	♀. Rangoon.	♀. Manado.	♀. Siam.
Length of skull	19	23	20	24	25
Width of skull	21	24	21½	27	28
Width of fronto-parietals in front.....	6½	9	8½	10	11
Width of fronto-parietals at postorbital processes...	6½	10	9½	15	19

Disk of third finger one half to three fifths the diameter of the eye. In some specimens the tibio-tarsal articulation reaches the eye, in others the end of the snout, in most between these two points.

This species presents the well-known colour-variety characterized by longitudinal dark bands on the head and body (var. *sexvirgata* s. *quadrilineata*). But, as already noticed by Anderson on an Assamese specimen, the passage between this variety and the typical form exists; we have such intermediate specimens from Darjeeling and from Formosa. In spotted examples, a small X- or hourglass-shaped dark marking, extending to between the eyes, is frequently present. The hinder side of the thighs is usually brown, with small whitish spots; but these may be absent, as usually in *R. cruciger*, or they may be large and separated by a dark network, as usually in *R. maculatus*; these variations do not correspond with any other that I can find.

Hab. Southern China and Eastern Himalayas to the Malay Peninsula and Archipelago.

RHACOPHORUS MACULATUS.

Hyla maculata, Gray, Ill. Ind. Zool. i. pl. lxxxii. fig. 1 (1832).

Bürgeria maculata, Tschudi, Class. Batr. p. 75 (1838).

Polypedates leucomystax, Dum. & Bibr. viii. p. 519 (1841).

Polypedates leucomystax, part., Kelaart, Prodr. Faun. Zeyl. p. 193 (1852).

Polypedates maculatus, part., Günth. Cat. Batr. p. 78 (1858), and Rept. Brit. Ind. p. 428 (1864); Stoliczka, Proc. As. Soc. Beng. 1872, p. 106.

Polypedates maculatus, Blanf. Journ. As. Soc. Beng. xxxix. p. 376 (1870).

Polypedates biscutiger, Peters, Mon. Berl. Ac. 1871, p. 649.

Rhacophorus maculatus, part., Bouleng. Cat. Batr. p. 83 (1882).

The largest specimen (from Malabar) in the Collection measures 73 millim. from snout to vent.

The posterior border of the fronto-parietals is produced on each side into a process which joins, or is connected by ligament with, the squamosal. The above figures show the amount of variation in the development of this parieto-squamosal arch, irrespective, apparently, of age and locality. The nasals and fronto-parietals are smooth, except in specimens which have the posterior arch much thickened, in which case that region is finely sculptured; but the skin never adheres to any part of the skull. The fronto-parietals are broadest in front, and the postorbital processes merely indicated.

Disk of third finger two fifths to one half the diameter of the eye. The tibio-tarsal articulation reaches the eye or between the eye and the tip of the snout. Interorbital space once to once and one third the width of the upper eyelid.

Upper parts variously spotted, never banded; hinder side of thighs with large yellow spots, usually separated by a purplish-brown network.

Hab. India and Ceylon. Specimens in the British Museum from Ganjam, Madras, Bombay, Salem, Malabar, Nilgherries, and Ceylon.

According to Nevill, *R. maculatus* is found in the hot dry parts of Ceylon, from Putlam, across the island, and south to Batticaloa; it has a peculiar fondness for houses. Thurston (Cat. Batr. S. Ind. 1888) remarks that it is common in Madras at night, adhering to walls and windows, and is known among Europeans as the "chunam frog," from the frequency with which it is found on chunam (shell-lime) walls.

RHACOPHORUS CRUCIGER.

Polypedates leucomystax, part., Kelaart, Prodr. Faun. Zeyl. p. 193 (1852).

Polypedates cruciger, Blyth, in Kelaart, *op. cit.* App. p. 48 (1852).

Polypedates maculatus, part., Günth. Cat. Batr. p. 78 (1858); and Rept. Brit. Ind. p. 428 (1864).

Rhacophorus maculatus, part., Bouleng. Cat. Batr. p. 83 (1882).

Rhacophorus cruciger, Nevill, Taprobanian, iii. p. 6 (1888).

The largest female specimen measures 85 millim. from snout to vent, the largest male only 56.

This species is more constant in cranial characters and in coloration than its two nearest allies. In general appearance it strongly resembles the likewise Ceylonese *R. eques*.

A slender bony parieto-squamosal arch. Skin adherent to the rugose nasals and fronto-parietals; latter bones broadest in front, without or with a mere indication of postorbital processes. Inter-orbital space once to once and a half the width of the upper eyelid.

Digital expansions larger than those in *R. maculatus*, that of the third finger measuring one half to two thirds the diameter of the eye. The tibio-tarsal articulation reaches the end of the snout or a little beyond.

No large dorsal spots, but usually a large dark or black-edged hourglass-shaped marking extending from between the eyes to in front of the sacrum; hinder side of thighs brownish, uniform or with small whitish spots.

Hab. Ceylon. Nevill states that he has examined some hundred or more, of both sexes, of this frog and of *R. maculatus*, as found in Ceylon, without coming across any intermediate forms. *R. cruciger* is found in the wet valleys of the hill district around Kandy, but he has not seen it from any other locality. *R. maculatus* has a peculiar fondness for houses; but *R. cruciger*, though found amongst plantain-groves, &c., seems never to enter houses.

2. On some new Species and Genera of Birds of the Family *Dendrocolaptidæ*. By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Society.

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The following species of the family Dendrocolaptidæ, so far as I can make out, appear to be undescribed. They are based on specimens in the British Museum, and in my own collection and that of Messrs. Salvin and Godman.

1. *UPUCERTHIA BRIDGESI*, sp. nov.

Above brown, rump more rufous, head more cinereous; long, narrow superciliaries white; wings blackish, inner primaries and secondaries rufous at the base and edged externally with rufous; tail uniform rufous: beneath dirty white, flanks flammulated with brown; under wing-coverts whitish; inner margins of wing-feathers pale rufous; bill black; lower mandible at the base yellowish; feet blackish. Whole length 7·0 inches, wing 3·1, tail 2·8.

Hab. Bolivia (*Bridges*).

Mus. Brit.

This species comes nearest to *U. montana*, having the whole tail rufous, but the wings and tail are shorter, and the body is much whiter beneath.